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Transforaminal approach for hip fracture surgery anesthesia

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Abstract
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Abstract

The anesthesia plan for the management of pertrochanteric fracture of the femur could be very challenging, especially in older patients with cardiovascular and pulmonary comorbidities.

In the present case report, we describe the case of an 86-y -old man, NYHA class III, with pulmonary interstitial disease, presenting with pertrochanteric fracture of the femur, in whom perioperative analgesia was assured by spinal root block at the level of L3-L4 with a transforaminal US-guided approach.

Case report. An 86-year-old patient arrived in the emergency room after an accidental fall. He suffered a compound fracture of the neck of the right humerus and a pertrochanteric fracture of the right femur. The patient presented hypertensive and ischemic heart disease with multiple PTCA operations and stenting on multiple coronary arteries. The echocardiography showed a severe aortic stenosis with the presence of a thin neoformation adhering to the right coronary cusp compatible with fibroelastoma and a moderate mitral regurgitation. The ejection fraction was 60%. The NYHA was III. Furthermore, the patient had a pulmonary interstitial disease, with a history of frequent hospitalizations for acute respiratory failure for pneumonia. On ABGs, pO2 was 56mmHG in room air with SpO2=93%.

Since both spinal and general anesthesia presented high-risk for the patient, the anesthetic management was a spinal root block at the level of L3-L4 with a transforaminal US-guided approach.

We proceeded with an ultrasound-guided iliac fascia nerve block with a suprainguinal approach with a 21G eco-reflecting needle, plane probe and 15 ml of 0,5% ropivacaine. The goal was to reduce the patient's pain and allow him to be mobilized for the execution of transforaminal block. The patient was then mobilized in lateral recumbency. A curved probe was positioned longitudinally over the spinous process. The lamina was identified and therefore the probe has been tilted inferiorly to locate the inferior border of the lamina and then laterally (ipsilateral to the femur fracture), until the facet joint has been visualized. An 85mm 21G – 20° needle connected to an ENS, was inserted with an in-plane approach, and was advanced in a postero-anterior direction until the tip was close to the spinal root, just below the facet joint, respect to which is more lateral and anterior. At a stimulation of 0,5 mA, the patient presented clonus of the affected lower limb. At 0,2 mA, the cloning stopped, then, after gentle aspiration, 10 ml of 0,5% ropivacaine and 8mg Dexamethasone were injected.

Before the procedure, the NRS was 10/10, after the iliac fascia block, it was reduced to 7/10, two minutes after the periradicular block, the NRS was 0/10. It was, therefore, possible to reduce the fracture and correct with TFNA in a time of 45 minutes. Blood pressure remained stable for the entire duration of the surgery (150/80 mmHg), total blood loss was about 200 ml, the patient never complained of pain. Due to the preserved hemodynamic stability, the patient returned to the ward and admission to the ICU was not required. In the two days following the procedure, the NRS was 2/10 with an administration of paracetamol 1g x 2 times for day.

Discussion. The present case report underlines the challenges of the haemodynamic management in old, high-risk patients undergoing major orthopedic procedures.